

Rec'd PCT/PTO 15 APR 2005

C'D 03 JAN 2005

PATENT COOPERATION TREATY

WIPO

PCT

PCT

10/531464

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P1930	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB2003/004646	International filing date (day/month/year) 20-10-2003	Priority date (day/month/year) 18-10-2002
International Patent Classification (IPC) or national classification and IPC B03C 1/28, G01N 33/543		
Applicant Bio-Nobile Oy et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 14-05-2004	Date of completion of this report 09-12-2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Irma Bornhede/MN Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2003/004646

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2003/004646

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-13</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>4, 7, 10-11</u>	YES
	Claims	<u>1-3, 5-6, 8-9, 12-13</u>	NO
Industrial applicability (IA)	Claims	<u>1-13</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention concerns a magnetic transfer method and a micro-particle transfer device for sorting, collecting, transferring or dosing micro-particles in a liquid by using magnetic field. The invention also concerns a rector unit for micro-particles. The particles are collected on the surface of a protective cover by means of at least one magnet placed inside it. The particles are dosed by means of a ferromagnetic body.

The aim of the invention is to provide a device by means of which micro-particles can be collected from a large volume and concentrated into a smaller volume.

Reference is made to the following documents:

D1: US 2 517 325 A

D2: US 6 020 211 A

D3: WO 87 055 36 A1

D4: US 6 468 810 B1.

Document D3 is considered to represent the closest prior art. Document D3 describes a method and apparatus for collecting and dispersing ferromagnetic particles in a fluid medium. The apparatus, a probe, comprises a cylindrical plastic sleeve having a nose-shaped end. The nose has a thinner jacket wall than the body of the sleeve. A permanent magnet is movable in the passaway of the sleeve. To collect the particles, the permanent magnet is moved into the closed nose end. To disperse the particles, the permanent magnet is moved to a position spaced from the nose.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

The invention according to claims 1 and 5 differs from the method and the device in D3 in that the magnet and the ferromagnetic body are moved in relation to each other so that the magnet is partially or completely outside the ferromagnetic body, when collecting the particles and the magnet is partially or completely inside the ferromagnetic body, when releasing or dosing the particles.

Due to these features, the ferromagnetic particles are released by changing the magnetic field.

Consequently, the problem is to develop an alternative to release the micro-particles.

A solution to this problem is known from document D1, which describes a long bar magnet inside a soft-iron tube. By moving the magnet inwards in the soft-iron tube, the magnetic field is diminished. By moving the magnet outwards from the soft-iron tube, the magnetic field is intensified.

It is therefore considered to be obvious for a person skilled in the art to use the teachings in D3 together with prior-art as specified in D1 in order to achieve a magnetic transfer method and a micro-particle transfer device for sorting, collecting, transferring or dosing micro-particles in a liquid according to the claimed invention.

Therefore, the method and the device defined in claims 1 and 5 do not involve an inventive step.

The reactor unit comprises a micro-particle unit defined in claim 5 and therefore, the invention defined in claim 13 does not involve an inventive step.

Claims 2-3, 6, 8-9 and 12

In view of the cited art and general knowledge, the features defined in claims 2-3, 6, 8-9 and 12 are considered to be measures obvious to a person skilled in the art.

Accordingly, the invention defined in claims 2-3, 6, 8-9 and 12 lacks inventive step.